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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,263	03/02/2004	Bruno M. LaFontaine	H1582	2817
45305	7590	06/16/2005		
RENNER, OTTO, BOISSELLE & SKLAR, LLP (AMDS)				
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EXAMINER				
RUTLEDGE, DELLA J				
ART UNIT		PAPER NUMBER		
2851				

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,263

Applicant(s)

LAFONTAINE, BRUNO M.

Examiner

D. Rutledge

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain (US Pat. No. 6,870,554) in view of Mei et al. (US Pat. No. 6,379,867) and Koch et al. (US Pat. No. 6,195,201) or Ueno (US Pat. No. 6,243,126).

Jain et al. have a lithography method for selectively exposing parts of first and second targets, comprising directing light from a source 1 to a steering mirror 4 to a first SLM5 to a second SLM 6 to the projection means 7 and onto the substrate or target 8.

The reference differs from the claimed invention in that it is not disclosed whether the first SLM 5, will condense light. Koch et al. teach that an SLM may also be used to condense light. One of ordinary skill in the art at the time the invention was made would to use the first SLM as a condenser because the speed of the operation of the SLM in receiving a changing light signal from the steering mirror and accurately directing it to the second SLM would be even more effective in controlling the light in an environment where nano-seconds are used. Koch et al. in the lithographic environment and Ueno in a different environment disclose using a mirror array, such as a DMD or SLM, in place of a condenser lens. In Koch et al. see at least the abstract and in the Ueno reference see col. 7, lines 21 – 31.

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Mei et al., in the lithographic environment, discloses in at least the abstract that when the first image is created responsive to the DMD receiving data the pattern is created in the pixel elements of the DMD, after exposure time is complete, the target and /or pixels are moved and the second or next sub-pattern is provided to the pixels of the DMD, then a second target is exposed. The optics in the modified system of Jain et al., such as the steering mirror 7 and condensing SLM 5 would be changed in accord with the pattern to be exposed. The mirror facets of the SLM would be controlled in the same way as an SLM is normally controlled, such as by piezo-electric pushers – claims 1 – 5, 15, 19.

Claim 6, 7, 16 - 18 obvious since re-directing the beam would cause a change in the distribution of the light.

Jain does not disclose the wavelength being used, but since the field is using smaller and smaller wavelength (below 100 nm) one of ordinary skill in the art would be motivated to use the system or apparatus within the range claimed – claim 8.

The substrate 7 is covered with resist – claim 12.

One of ordinary skill in the art using the reference and combined teaching would recognize that the lithographic apparatus may be used in a mix- in- match mode, or other common mode of operation – claims 13, 14.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Blecker et al. (US Pub. No. 2004/0239909), Mei et al. (US Pat.

No. 6,509,955) and Meisburger (US Pub. No. 2005/0041229) disclose using a digital mirror array in a lithographic environment.

Response Data

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


D. Rutledge
Primary Examiner
Art Unit 2851

dr
6/13/2004